

T-O-P S-E-C-R-E-T
[redacted] CORONA

ICRS-M-8-69

[redacted]
7 April 1969

25X1A

IMAGERY COLLECTION REQUIREMENTS SUBCOMMITTEE OF COMIREX

MINUTES OF MEETING

10:00 - 13:00 Tuesday, 18 March 1969

PRESIDING

25X1A

[redacted]
Acting Chairman

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MEMBERS PRESENT

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[redacted]
Mr. J. Urban, ONI

DIA

CSI

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[redacted]
Lt. Col. N. D. Thurman, AFNIN

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Office of Chairman: [redacted]

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CONSULTANTS PRESENT

[redacted] NRO

[redacted] NPIC

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OBSERVERS PRESENT

[redacted] DIA

[redacted] DIA
NRO

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BRIEFERS

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Color Photography [redacted]

Group I

Excluded from automatic down-
grading and declassification

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[redacted]

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NRO review(s) completed.
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[redacted] ICRS-M-8-69 [redacted]

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BRIEFING ON COLOR PHOTOGRAPHY

25X1A 1. [redacted] CIA, provided a status briefing on the types of color photography that is available in the national reconnaissance program. He noted that the three primary systems were the SO-121 (natural color), SO-180 (false color) and Bi-color which is created with the use of filters on normal black and white film. He displayed vu-graphs illustrating the characteristics of these systems. He noted that it was not a question of color replacing B&W, but rather what assistance color could be in the information gathering process. He pointed out some of the potential uses of color against nuclear, missile and economic targets. [redacted] CIA, presented a more detailed briefing on the intelligence uses of color photography [redacted] concluded the briefing with the following observations:

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25X1D

- a) Use of color films in current systems is difficult, but not impossible.
- b) Color would appear to have uses for strategic intelligence.
- c) Color collection programs to date, have not been too successful from the standpoint of acquiring coverage of targets associated with analyst problems.
- d) Resolution is not a significant bar to color photography.
- e) Bi-color is exploitation limited.
- f) Current color films do not represent the best that could be made.

He recommended the following:

- a) Continue color collection against particular targets and problems.
- b) Emphasize collaboration between analysts and the PI.

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c) Development of new color films is needed.

25X1A Copies of [redacted] non pictorial vu-graphs are attached.

APPROVAL OF MINUTES

2. Minutes for the meetings of 26 February, 4 March and 16 March were approved with minor additions and changes.

SATELLITE SCHEDULE

25X1A 3. [redacted] reported there was no change to the launch schedule.
Schedule is:

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[redacted]

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1050 - 19 Mar 69
1051 - 14 May 69
1107 - 23 Jul 69

1050 MISSION PRIORITIES

4. The Committee could not agree on a priority structure. The DIA member stated that his interpretation of the USIB instruction was that "holiday" areas should have the highest priority. CIA member stated there were selected areas and targets that required surveillance on an equal priority with the "holiday" areas.

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The Chairman reported that USIB had recently approved a new paper (USIB-D-46.4/27) on this subject and he could see nothing in the paper that precluded the inclusion of selected point and area targets in the same priority with "holidays".

[redacted] NRO, advised that priorities were utilized for development of weather criteria and that the criteria for "holidays" is less stringent. The Chairman informed the Committee that he would consolidate their input and refer the impasse to COMIREX for resolution. (The priorities were later approved by COMIREX with the holidays and point targets equal in priority.)

IMPACT AREAS

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5. The Committee approved the deletion of the missile impact targets referenced in a GMAIC paper (TCS-5891) dated 3 March with the exception of [redacted] and the 3 targets referenced in paragraph 3. (Army member wished to re-examine these targets and requested a delay in their deletion; he subsequently concurred in the decision by phone.)

SOUTH CHINA/NORTH VIETNAM PRIORITIES LIST

6. Since there was some disagreement concerning whether the Committee had previously approved the changes to the list as recommended by DIA, the Chairman polled the individual members and the changes were approved. The DIA member noted that this finally completed action on a memorandum that he presented to the Committee on 3 December 1968. The Committee also approved the deletion of Yai Cheng coastal defense site [redacted] from the South China portion of the list. It was determined that this installation was an electronics facility.

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CUBA

7. Chairman reported the area coverage for the current 56-day period stood at 89%. He informed members that the first U-2R was flown over Cuba on 12 March.

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TARGET UPDATES

8. The weekly transaction sheets containing:

16 Additions
16 Changes
5 Deletions

were approved. One recommended change [redacted] was held in a pending stage. Two recommended deletes [redacted] were removed from the WTS until NPIC and DIA completed a joint review of the two targets. 25X1A 25X1A

SAWRF PAPER

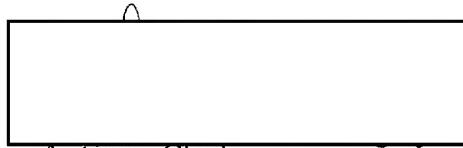
9. The Chairman stated that he was completing a draft memorandum to Chairman, COMIREX, which addresses the capabilities of the various reconnaissance systems to answer the SIC requirement against the SAWRFs. He stated that a copy would be made available to the members for their concurrence and/or comments.

COMIREX TARGET FILE

10. Chairman distributed a paper showing the record format and data that is maintained in the computer on the COMIREX target file. He requested members review the paper and inform him of any additional data that should be included in the file.

EXSUBCOM BRIEFING

11. The scheduled briefing by [redacted] was postponed to next week 25X1A 25X1A due to the length of the "color" briefing.



Acting Chairman
Imagery Collection Requirements
Subcommittee

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Attachment: a/s

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Attachment to
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STATUS BRIEFING
ON
COLOR IN THE NRP

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• TECHNIE TEMPLAT•
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PURPOSE of PHOTOGRAPHIC RECONNAISSANCE

IS TO

COLLECT INFORMATION

IS TO

COLLECT INTELLIGENCE

(WHAT COMES LATER)

WHAT IS INFORMATION ?

OBJECTS

GEOMETRY/SHAPE

PERSPECTIVE

LUMINANCE

COLOR

PHOTOGRAPH

DETAIL

STEREO

DENSITY/CONT.

COLOR (?)

QUESTION

GIVEN THAT COLOR IS PART OF MAN'S WORLD AND
THAT PHOTOGRAPHY COLLECTS INFORMATION ABOUT
MAN'S WORLD THE QUESTION BECOMES - -

*Does COLOR PHOTOGRAPHY provide useful information
for the INTELLIGENCE PRODUCTION PROCESS ?*

AN OBSERVATION

**THE NATURE OF SATELLITE RECONNAISSANCE IS
CHANGING**

**PURPOSE IS NO LONGER SO MUCH TO FIND TARGETS
AS TO IDENTIFY THOSE ALREADY FOUND**

QUESTION THEN BECOMES

NOT
COLOR IN PLACE OF BLACK and WHITE

BUT

CAN COLOR ASSIST, IN A SIGNIFICANT
WAY, IN THE INFORMATION GATHERING PROCESS ?

PURPOSE OF BRIEFING

is, therefore,

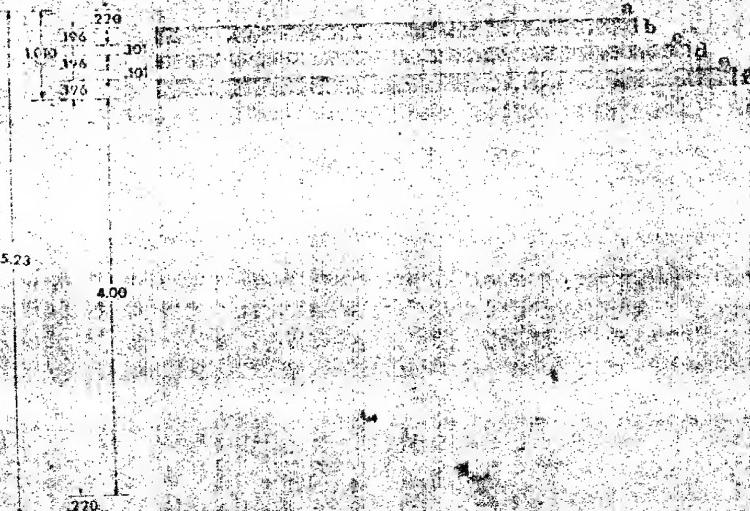
To DEMONSTRATE that COLOR may play a SIGNIFICANT
ROLE in the Photographic Information Gathering Process

- *WHAT Is COLOR*
- *SUGGESTIONS on How It Can be Used*
- *Capabilities of SYSTEMS*
- *PROBLEMS*

PRIMARY COLOR SYSTEMS

- 1. NATURAL COLOR- SO-121, AERIAL EKTACHROME**
- 2. "FALSE" COLOR - SO-180, INFRARED EKTACHROME**
- 3. BI-COLOR ---- COLOR FROM HIGH RESOLUTION
BLACK & WHITE**

PHYSICAL CONSTRUCTION OF TYPICAL COLOR FILM



- a COLOR BALANCING FILTER AND ANTI-CURL COATING
- b BLUE SENSITIVE EMULSION WITH YELLOW DYE COUPLER
- c BLUE ABSORBING COLLOIDAL SILVER EMULSION
- d GREEN SENSITIVE EMULSION WITH MAGENTA DYE COUPLER
- e GREEN ABSORBING FILTER
- f RED SENSITIVE EMULSION WITH CYAN DYE COUPLER
- g EMULSION SUPPORT
- h ANTI-HALATION AND ANTI-CURL COATINGS

ALL MEASUREMENTS IN MILS (1/1000 INCH)

CONFIDENTIAL

HOW COLOR WORKS

EKTACHROME IR

TYPICAL COLOR

NATURAL COLORS

YELLOW FILTER

Recorded Silver Image

IR SENSITIVE	BLUE SENSITIVE
GREEN SENSITIVE	GREEN SENSITIVE
RED SENSITIVE	RED SENSITIVE

Recorded Dye Image

CYAN	YELLOW	MAGENTA	CYAN

Resultant Colors

- NOTES: 1 - WRATTEN NO 12 ALWAYS USED WITH CD
2 - TYPICAL COLOR FILM IS SENSITIVE TO IR

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BI-COLOR

OSP / DDS & T

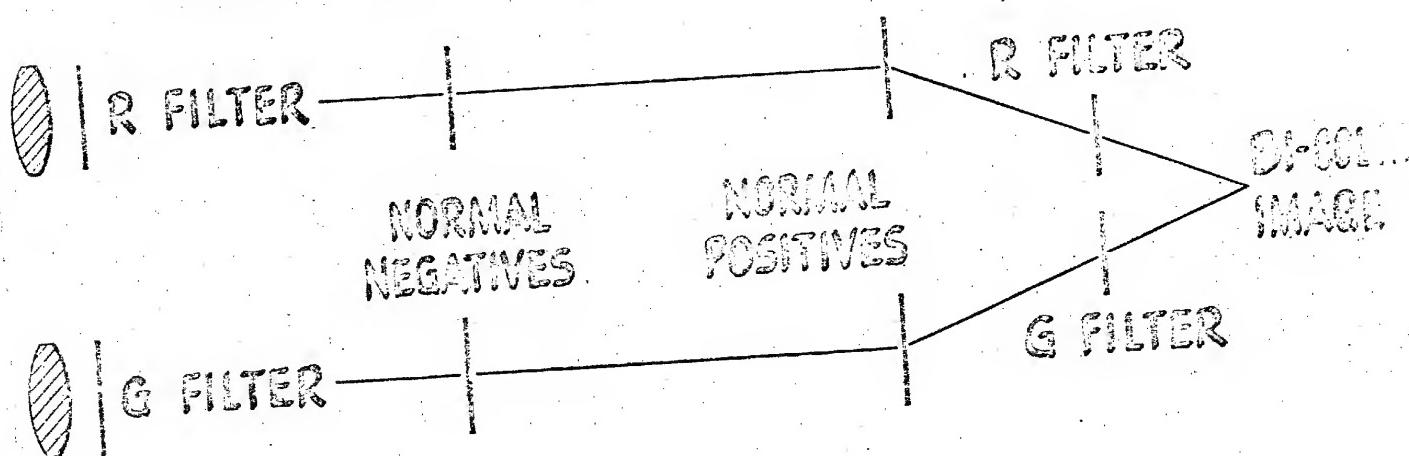
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WHAT IS BI-COLOR?

A TECHNIQUE FOR PRODUCING COLOR
BY USING NORMAL BLACK AND WHITE
HIGH RESOLUTION FILMS



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ADVANTAGES

- USES NORMAL BLACK AND WHITE RECORDS
- DOES NOT INTERFERE WITH PHOTointerpreter's
NORMAL JOB
- AVAILABLE AT COMIREX'S AND/OR SOC'S OPTION
- AVAILABLE AT ANALYST'S OPTION

EXPLORATION PROCESSES

IMAGE DISTORTION CORRECTION REQUIRED DUE TO "STEREO" COLLECTION

- RECTIFICATION - NOT ACCEPTABLE
- ORTHO PRINTING - RESULTS OK, BUT NOT THE BEST, TIME CONSUMING, TARGET LIMITED
- BI-COLOR ARES - BEST ON HAND, FLEXIBLE, ELIMINATES TIME PROBLEMS
- FUTURE - OPTICAL TECHNIQUES PRACTICAL, NO FUNDAMENTAL LIMITATIONS

ILLEGIB

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COMPATIBILITY of SATELLITE SYSTEMS for KH-4B

COMPATIBLE

KH-4B	TWO FILTERS per CAMERA	YES	YES W/B&W	YES W/B&W
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APPROXIMATE RESOLUTION of
various KH-4B variants with COLOR

KH-4B

GREEN - 10 ft.

15 ft.

25-30 ft.

RED - 6 ft.

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ILLEGIB

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SATELLITE COLOR TESTS

MISSION	TEST	RESULT
1102	BI-COLOR TEST - ENGINEERING	GREEN RECORD NO WORSE THAN NORMAL KH-4A; NPIC HAS NO OBJECTION TO BI-COLOR ACQUISITION.
1103	BI-COLOR TEST - OPERATIONAL 30 OPERATIONAL PASSES	EXPLOITATION PROBLEMS SEVERE, TIME CONSUMING ANALYSIS STILL UNDER WAY.
1104	SO-180 TEST - 800 ft.	STATIC PROBLEMS DUE TO PMU FAILURE, LOSS OF IR SPEED WITH VACUUM SETTING.
1105	SO-121 TEST - 500 ft.	COLOR BALANCE AND EXPOSURE GOOD, OUT-OF-FOCUS DUE TO LOW SYSTEM TENSIONS, BEST ABOUT 15 ft.
1106	SO-121 -2,000 ft.	BEST RESULTS FROM KH-4B

STAT

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OBSERVATIONS (Continued)

- KEY to Successful use of COLOR lies with Analysts, as this is only way to break 'CHICKEN and EGG' paradox



- RESOLUTION is, perhaps, no longer a significant bar to Color Photography
- Bi-COLOR is Exploitation Limited
- Current Color Films do not represent the Best that could be made

RECOMMENDATIONS

CONTINUE COLOR COLLECTION EMPHASIZING PARTICULAR
TARGETS AND PROBLEMS

EMPHASIZE COLLABORATION BETWEEN ANALYSTS AND
PHOTOINTERPRETERS

NEW COLOR FILMS ARE INDICATED